

WHAT IS CLAIMED IS:

1. A shielding assembly for use with an electromagnetic field generating source, said assembly comprising:
 - an outer housing comprising a conducting material, said outer housing defining a chamber enclosing the source, said outer housing defining a housing wall thickness;
 - an inner body having a non-planar configuration substantially filling said chamber, said inner body defining a thickness greater than said housing wall thickness, said inner body formed of a composition comprising a polymeric material and a filler material, said filler material comprising one of the group consisting of a semiconductive material and a dispersed conductive material.
2. The shielding assembly of claim 1 wherein said filler material is a semiconductive material selected from the group consisting of carbon and graphite.
3. The shielding assembly of claim 2 wherein said polymeric material is one of the group consisting of ABS and nylon.
4. The shielding assembly of claim 1 wherein said inner body composition comprises ABS and approximately 2-10% by weight of carbon.
5. The shielding assembly of claim 1 wherein said outer housing comprises a polymeric material and metallic fibers.
6. The shielding assembly of claim 1 further comprising a printed circuit board wherein said chamber is defined by housing and said printed circuit board, the source being mounted on said printed circuit board.
7. The shielding assembly of claim 6 wherein said inner body has a first surface disposed substantially parallel to and facing said printed circuit board and at least one spacing element engaged with said printed circuit board to position said first surface at a predetermined distance from said printed circuit board, said first surface comprising a substantial majority of said inner body facing said printed circuit board.
8. The shielding assembly of claim 7 wherein said inner body is removably positioned in said chamber and secured therein by attachment of said printed circuit board to said outer housing.

9. The shielding assembly of claim 1 wherein said inner body is spaced from and substantially circumscribes the source.

10. The shielding assembly of claim 1 wherein said inner body composition includes approximately 2-10% by weight of said filler material.

11. The shielding assembly of claim 1 wherein said filler material is a dispersed conductive material comprising a metallic powder.

12. The shielding assembly of claim 1 wherein the inner body fills at least about 50% of the void volume within said chamber.

13. The shielding assembly of claim 1 wherein said inner body fills at least about 80% of the void volume within said chamber.

14. A shielded microwave transceiver assembly, said assembly comprising:
a microwave transceiver circuit including a resonant oscillator coupled with a printed circuit board, said board having a first major surface and an opposite second major surface, said resonant oscillator defining an oscillator projection extending outwardly from said first major surface;

an outer housing comprising a conducting material, said outer housing positioned in engagement with said first major surface wherein said outer housing and said first major surface define an area of contact, said area of contact circumscribing said oscillator projection and wherein said outer housing and said first major surface define a first chamber enclosing said oscillator projection; and

an inner body, said inner body comprising a polymeric material, said inner body substantially filling said first chamber, said inner body spaced from and substantially circumscribing said oscillator projection.

15. The assembly of claim 14 wherein said inner body includes a semiconductive material within the approximate range of 2-10% by weight.

16. The assembly of claim 15 wherein said semiconductive material is one of the group consisting of carbon and graphite.

17. The assembly of claim 15 wherein said polymeric material is one of the group consisting of ABS and nylon.

18. The assembly of claim 15 wherein said inner body has a thickness between said printed circuit board and said outer housing of at least about 0.25 inches.

19. The assembly of claim 14 wherein said inner body has a first surface disposed substantially parallel to and facing said printed circuit board and at least one spacing element engaged with said printed circuit board to position said first surface at a predetermined distance from said printed circuit board, said first surface comprising a substantial majority of said inner body facing said printed circuit board.

20. The assembly of claim 19 wherein said predetermined distance is approximately 0.05 inches.

21. The assembly of claim 14 wherein said printed circuit board includes a grounding layer and a plurality of grounding vias comprising plated through holes electrically connecting traces on said first major surface to said grounding layer, said plurality of grounding vias defining a plurality of staggered rows substantially circumscribing said first chamber.

22. The assembly of claim 14 wherein said outer housing comprises a polymeric material and metallic fibers.

23. The assembly of claim 22 wherein said printed circuit board includes a ground layer, said outer housing forming a capacitor with said ground layer whereby said outer housing is grounded.

24. The assembly of claim 22 wherein said outer housing comprises ABS and stainless steel fibers.

25. The assembly of claim 14 wherein said outer housing and said printed circuit board further define a second chamber, said printed circuit board having a first portion disposed facing said first chamber and a second portion facing said second chamber, said area of contact between said outer housing and first major surface separately circumscribing each of said first and second chambers and substantially separating said first and second chambers, and wherein said printed circuit board includes a grounding layer and a plurality of grounding vias comprising plated through holes electrically connecting conductive traces on said first major surface to said grounding layer, said plurality of grounding vias substantially circumscribing each of said first and second chambers.

26. The assembly of claim 25 wherein said microwave transceiver circuit disposed within said first portion of said printed circuit board generates a radio frequency signal and said printed circuit board further includes a conductive material defining a signal path communicating said signal from said first portion to said second portion of said printed circuit board, said signal path including a first microstrip second harmonic filter disposed between said first and second portions.

27. The assembly of claim 26 wherein said signal path extends through said second portion and communicates said signal from said second portion to a transmitting antenna wherein said signal path includes a second microstrip second harmonic filter defined by said second portion of said printed circuit board.

28. The assembly of claim 14 wherein said inner body includes a dispersed conductive element.

29. The assembly of claim 14 wherein said inner body fills at least about 80% of the void volume of said first chamber.

30. A method of shielding a motion detection system having a resonant oscillator defining a projection extending from a printed circuit board, said method comprising:
engaging the printed circuit board with an outer housing wherein the outer housing and printed circuit board define a first chamber, the oscillator projection being disposed within the first chamber and the outer housing comprising a conductive material; and
positioning a polymeric inner body in the first chamber wherein the inner body substantially fills the first chamber, said inner body spaced from and substantially circumscribing the oscillator projection.

31. The method of claim 30 further comprising the step of injection molding the outer housing with ABS and stainless steel fibers.

32. The method of claim 30 further comprising the step of injecting molding the inner body with a polymeric material and approximately 2-10% by weight of carbon.

33. The method of claim 32 wherein the inner body is injection molded with ABS and approximately 5% carbon.

34. The method of claim 32 further comprising the step of injection molding the outer housing with ABS and stainless steel fibers.

35. The method of claim 30 wherein the polymeric inner body is positioned in the first chamber prior to engaging the printed circuit board with the outer housing and the method further comprises securing the inner body within the first chamber by securing the printed circuit board to the outer housing and thereby compressively engaging the inner body between the outer housing and the printed circuit board.

36. The method of claim 35 wherein the inner body includes a substantially planar first surface disposed parallel to and facing the printed circuit board, the first surface comprising a substantial majority of the inner body facing the printed circuit board, and wherein the method further includes maintaining a predetermined distance between the first surface of the inner body and the printed circuit board by positioning at least one spacing element between the first surface and the printed circuit board.

37. The method of claim 36 wherein the positioning element is integrally formed on the inner body.

38. The method of claim 30 further comprising the step of injecting molding the inner body with a polymeric material and a metallic powder.

39. The method of claim 30 wherein said inner body fills at least about 80% of the void volume of the first chamber.